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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/409,338	09/30/99	YAMADA M	030662-047

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EXAMINER	
SHOSHO, C	
ART UNIT	**PAPER NUMBER**
1714	6

DATE MAILED: 11/13/00

Please find below and/or attached an Office communication concerning this application or pr ceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/409,338	Yamada et al.
Examiner	**Group Art Unit**
Callie Shosho	1714

☒ Responsive to communication(s) filed on Aug 25, 2000 and September 11, 2000

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1, 2, 5, 8, and 9 is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1, 2, 5, 8, and 9 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

DETAILED ACTION

1. All outstanding rejections except for those described below have been overcome by applicants' amendments filed 8/25/00 and 9/11/00.

In light of applicants cancellation of some claims and incorporation of their limitations into other claims, the rejections of record are restated below to reflect these changes.

Further, this rejection is non-final in light of the new grounds of rejection as set forth with respect to the Schwarz, Jr. (U.S. 5,990,198) and Gundlach et al. (U.S. 6,054,505) references as described in paragraph 7 below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, formula (I) discloses a substituent which is labeled "A" and then describes "Am" is 1-imidazolyl. Should "A" be changed to "Am" in formula (I)?

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-2, 5, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nigam et al. (U.S. 5,973,025) in view of Schwarz, Jr (U.S. 5,990,198).

Nigam et al. discloses an ink jet ink having a viscosity of 1.5-15 cP wherein the ink comprises azo dye, aqueous medium, and basic polymer corresponding to presently claimed formula I wherein L is a single bond, -CO-, arylene, or alkylene and Am is a nitrogen atom-containing heterocyclic group such as 1-imidazolyl. It is disclosed that the polymer has a molecular weight of preferably 300-100,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.4, lines 11-13, col.5, lines 45-46, col.8, lines 52-53, col.9, lines 49-50, col.10, lines 36-37 and 42-46, col.12, lines 41-42 and 48-49, col.13, lines 40-45, col.18, lines 42-43, col.20, lines 6-15, and col.33, lines 15-17).

The difference between Nigam et al. and the present claimed invention is the requirement in the claims of the amount of polymer.

Schwarz, Jr., which is drawn to ink jet inks, discloses the use of 0.1-30% basic polymer containing nitrogen-containing heterocyclic groups in order to produce ink with improved water fastness, smear resistance, and reduced bleed (col.6, lines 1-8).

In light of the motivation for using specific amount of polymer disclosed by Schwarz, Jr. as described above, it therefore would have been obvious to one of ordinary skill in the art to use this amount of polymer in the ink if Nigam et al. in order to produce an ink with improved water fastness, smear resistance, and reduced bleed, and thereby arrive at the claimed invention.

6. Claims 1-2, 5, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bates et al. (U.S. 5,958,999) in view of Breton et al. (U.S. 5,938,827) and Nigam et al. (U.S. 5,973,025).

Bates et al. disclose an ink jet ink containing dye, aqueous medium, and 0.1-10% basic polymer such as polyvinylpyrrolidone and polyvinylpyridine which corresponds to presently claimed formula I wherein L is a single bond and Am is a nitrogen atom-containing heterocyclic group including vinylimidazole. It is disclosed that the polymer has a molecular weight of less than 50,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.3, lines 15-35, col.4, lines 11-15, col.5, lines 48-50, col.7, lines 16-17 and 48-57, col.9, line 65, col.10, lines 20 and 30, and example 11).

Bates et al. does not explicitly disclose the type of dye used, but does disclose the use of a dye known as Fast Black 2 (col.17, lines 3-4). Breton et al., which is drawn to ink jet inks, discloses that Fast Black 2 is indeed an azo dye (col.8, line 6 and last two formula).

The difference between Bates et al. and the present claimed invention is the requirement in the claims of the viscosity of the ink.

Bates et al. does not explicitly disclose the viscosity of their ink jet inks. However, given that if the ink viscosity is too high, the ink clogs the printer nozzles, it would have been within the level of one of ordinary skill in the art to control the viscosity of the ink jet ink to avoid printer clogging. Evidence to support this position is found in Nigam et al. which discloses that the viscosity of an ink is adjusted depending on its desired utility, and that for ink jet inks, the viscosity is typically 1.5-15 cP (col.18, lines 38-45).

In light of the above, it would have been obvious to one of ordinary skill in the art to control the viscosity of the ink jet ink of Bates et al. to 1.5 to 15 cP in order to produce an ink that will not clog the printer nozzles, and thereby arrive at the claimed invention.

7. Claims 1-2, 5, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwarz, Jr. (U.S. 5,990,198) or Gundlach et al. (U.S. 6,054,505).

Schwarz, Jr. discloses an ink jet ink having a viscosity of less than 10 cP wherein the ink comprises azo dye, aqueous medium, and 0.5-10% basic polymer corresponding to presently claimed formula I wherein L is a single bond and Am is a nitrogen atom-containing heterocyclic group. It is disclosed that the polymer has a molecular weight of preferably 1,000-100,000 or most preferably 2,000-5,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer to print the above ink (col.6, lines 44-45, col.7, lines 5-63, col.8, lines 22, 26, and 45, col.10, lines 26-27 and 37-38, and col.10, line 61-col.11, line 1).

Alternatively, Gundlach et al. disclose an ink jet ink having a viscosity of no more than 10 cP wherein the ink comprises azo dye, aqueous medium, and 0.1-50% basic polymer corresponding to presently claimed formula I wherein L is a single bond and Am is a quaternary ammonium group or a nitrogen atom-containing heterocyclic group such as 1-imidazolyl. It is disclosed that the polymer has a molecular weight of preferably 1,000-100,000. There is also disclosed a method for forming an ink image onto a substrate using an ink jet printer and the above ink (col.6, lines 65-66, col.9, lines 16-52, col.9, line 53-col.10, line 23, col.11, line 65-col.12, line 58, col.13, lines 15-17, 31, and 49, col.16, lines 1-5, col.23, lines 18-24 and 31-32, and col.23, line 55-col.24, line 5).

It is noted that both Schwarz, Jr. and Gundlach disclose a basic polymer wherein the side chain contains 2-imidazolyl wherein the present claims require 1-imidazolyl. In each case, the only difference between the reference polymer and that presently claimed is the position where the imidazolyl side chain is attached to the polymer. However, absent any evidence of criticality, one of ordinary skill in the art would expect the polymer to function in the same manner regardless of the position of attachment of the side chain, and thus, one of ordinary skill in the art would have arrived at the claimed invention.

Response to arguments regarding rejections

8. Applicants' arguments with respect to the EP 787778, GB 2031448, Song (U.S. 4,834,799), Shimomura et al. (U.S. 5,866,638), Colt et al. (U.S. 5,389,131), and Tomita et al.

(U.S. 5,019,164) references have been considered and are moot in view of the discontinuation of these references as applied against the present claims.

9. Applicants' amendments filed 8/25/00 and 9/11/00 have been fully considered but, with the exception of arguments relating to the EP 787778, GB 2031448, Song, Shimomura et al. , Colt et al., and Tomita et al. references, they are not persuasive.

Specifically, the applicant argues that:

(a) Neither Schwarz, Jr. or Gundlach et al. disclose basic polymer having 1-imidazolyl side chain as presently claimed.

(b) Nigam et al. and Bates et al. do not disclose all the limitations of the present claims.

With respect to argument (a), it is noted that both Schwarz, Jr. and Gundlach et al. disclose a basic polymer having 2-imidazolyl side chain. Given that the only difference between the claimed polymer and the polymer of either Schwarz, Jr. or Gundlach et al. is the position at which the imidazolyl side chain is attached, and absence any evidence to the contrary, one of ordinary skill in the art would expect the imidazolyl side chain as well as the polymer to function in the same manner regardless of the position of attachment of the side chain.

With respect to argument (b), it is agreed that neither Nigam et al. or Bates et al. alone disclose all the limitations of the present claims, which is why Nigam et al. is used in

combination with Schwarz, Jr. and Bates et al. is used in combination with Breton et al. and Nigam et al.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

CS

Callie Shosho

Vasu Jagannathan

11/9/00